No. 13-298

In The Supreme Court of the United States

ALICE CORPORATION PTY. LTD.,

Petitioner,

v.

CLS BANK INTERNATIONAL, *et al.*,

Respondents.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

BRIEF OF AMICI CURIAE PROFESSOR LEE HOLLAAR AND PETER K. TRZYNA IN SUPPORT OF NEITHER PARTY

Peter K. Trzyna
Counsel of Record
ATTORNEY AT LAW
195 North Harbor Drive, #5403
Chicago, Illinois 60601
(312) 240-0824
pkt-law@sbcglobal.net

Amicus Curiae

Lee Hollaar
1367 East 100 South
Salt Lake City, Utah 84102
(801) 363-8086
hollaar@cs.utah.edu

Amicus Curiae

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THE LEX GROUP^{DC} ♦ 1825 K Street, N.W. ♦ Suite 103 ♦ Washington, D.C. 20006
(202) 955-0001 ♦ (800) 856-4419 ♦ Fax: (202) 955-0022 ♦ www.thelexgroup.com

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Statement of Interest of *Amici Curiae*[1]

Lee A. Hollaar is a professor of computer science in the School of Computing at the University of Utah, where he teaches courses in computer and intellectual property law and computer systems and networking. He has been programming computers since 1964 and designing computer hardware since 1969. He received his B.S. degree in electrical engineering from the Illinois Institute of Technology in 1969 and his Ph.D. in computer science from the University of Illinois at Urbana-Champaign in 1975. Prof. Hollaar was a Fellow with the Senate Committee on the Judiciary and technical advisor to its chair, Senator Hatch, and a visiting scholar with Judge Randall R. Rader at the Court of Appeals for the Federal Circuit.

As an inventor and patentee of computer-implemented technology, a Registered Patent Agent involved with the prosecution of patent applications since 1989, an expert witness and special master in patent litigation, the author of *Legal Protection of Digital Information* (BNA Books, 2002) and course material on computer-implemented patents, and teacher of that material, he is concerned that the

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[1] In accordance with Supreme Court Rule 37.6, counsel listed on the cover states that this brief was authored by amici curiae Professor Hollaar and reviewed by Peter K. Trzyna as counsel, and that counsel to a party did not author this brief in whole or in part. No person other than the amici curiae and their counsel made a monetary contribution to the preparation or submission of this brief.

Petitioners and Respondent have consented to the filing of this brief and their consents have been filed with the Court.

decision in this case might continue the unclear lines of what is statutory subject matter by making distinctions that are not tied to real technological differences or may force inventors of computer-based inventions to claim them in ways that obscure the patentable advance over the prior art. Having taught patent law to computer science and engineering students for almost two decades, he has seen how the disconnect between the current computer statutory subject matter distinctions and the realities of technology make it difficult to understand the current tests, to the detriment of innovators (especially those involved in software startups) and the patent system.

Peter K. Trzyna has been a Registered Patent Attorney since 1984 and is a member of the Illinois, New York, D.C., Federal Circuit, and Supreme Court bars. He has been doing patent prosecution for over 25 years, including as an attorney at Kenyon & Kenyon; Cadwalader, Wickersham & Taft; and Baker & McKenzie, where he was a partner in the Chicago office, prior to establishing the Peter K. Trzyna Law Office, P.C.. Mr. Trzyna has a B.S., M.A., J.D. and M.S. in Engineering and Applied Physical Science, all from the University of Wisconsin. A joint inventor in fourteen patents and numerous pending patent applications, most of which are computer science related, Mr. Trzyna also is the owner of several small businesses, including Windy City Technology, a plaintiff in a successful patent infringement litigation. He has been extensively quoted about patent law in the *Wall Street Journal*, *New York Times*, *Economist*,

Washington Post, and has co-authored articles[2] directed to whether patent law makes technological sense. Having obtained hundreds of patents and having many litigated, he has seen technologically unsound USPTO rejections and courts mired in trying to make sense of the intersection of computer science and patent law.

The views expressed here are solely those of Professor Lee Hollaar and Peter K. Trzyna, who respectfully submit that this Court's decision should draw a clear Sec. 101 line that is understandable and simple to apply because that line is firmly supported by technology and is in complete accord with this Court's past opinions.

Summary of the Argument

Last term, this Court unanimously demonstrated that by resisting the temptation to look at a broad characterization of a patent, and instead looking at what was actually being claimed, it was possible to state a clear and sensible rule

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[2] James R. Goodman, Todd E. Marlette, and Peter K. Trzyna, "Toward a Fact-based Standard for Determining Whether Programmed Computers are Patentable Subject Matter: The Scientific Wisdom of *Alappat* and the Ignorance of *Trovato I*," *Journal of the Patent and Trademark Office Society*, May 1995, Vol. 77, No. 5, 353-367; James R. Goodman, Todd E. Marlette, and Peter K. Trzyna, "The *Alappat* Standard for Determining That Programmed Computers are Patentable Subject Matter," *Journal of the Patent and Trademark Office Society*, October 1994, Vol. 76, No. 10, 727-802.

regarding statutory subject matter.[3] In this appeal, this Court should again state a clear and sensible rule.

For the more than four decades since this Court finally found an acceptable method claim for a computer-based invention, lower courts have been struggling to determine where to draw the patentable subject matter line. Though many consider this Court's *Benson*[4]-*Flook*[5]-*Diehr*[6] trilogy of decisions, recently confirmed by this Court in *Bilski*,[7] confusing and contradictory, a careful reading of the full record in each case shows that they all follow a simple, bright-line test for statutory subject matter: methods claimed as limited to particular embodiments are statutory, but unembodied claims are nonstatutory "abstract ideas."

By having this clear and simple test of statutory subject matter for computer-implemented inventions, the remaining patentability requirements (novelty, non-obviousness, and commensurate disclosure) can then play their roles

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[3] *Association for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. ___ (2013). Rather than simply view the patents as on "human DNA," this Court looked to the language of the claims, holding that isolated DNA claims were for a "product of nature" and were unpatentable, but those for cDNA were patentable as man-made creations.

[4] *Gottschalk v. Benson*, 409 U.S. 63 (1972).

[5] *Parker v. Flook*, 437 U.S. 584 (1978).

[6] *Diamond v. Diehr*, 450 U.S. 175 (1981).

[7] *Bilski v. Kappos*, 561 U.S. ___ (2010).

in solving today's problems with patents on computer-implemented inventions, something that cannot be done simply by trying to use the statutory subject matter test for this purpose.

Introduction

Since this Court first considered the patentability of computer-implemented inventions more than four decades ago, the use of computer technology has expanded well beyond the use of an expensive digital computer to control an industrial process to being seemingly omnipresent today. Microwave ovens, washers and dryers, televisions and radios, thermostats, furnaces and boilers, sprinkler controllers, clocks, and telephones are but a few of the appliances where an embedded computer has replaced mechanical timers, gears, and switches, resulting in more reliable products with more functionality at lower prices.

To exclude inventions from possible patent protection merely because they are computer-implemented would ignore today's information revolution and relegate the United States patent system to the 19th century. And trying to do so at this time may be impossible. As a recent GAO report noted, "By 2011 patents related to software made up more than half of all issued patents."[8]

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[8] United States Government Accountability Office, "Assessing Factors That Affect Patent Infringement Litigation Could Help Improve Patent Quality," GAO-13-465, August 2013, at 13. http://www.gao.gov/assets/660/657103.pdf.

Although the particular implementation or expression in computer software can be protected by copyright, that is not sufficient since copyright protection does not "extend to any idea, procedure, process, system, [or] method of operation,"[9] the very innovation that patents are intended to protect. Instead, today copyright protection is essentially limited to literal copying or taking advantage of source code from a former employer. But before patents on computer-implemented inventions became common, courts were expanding the nonliteral scope of copyright to "structure, sequence, and organization" of computer programs,[10] giving patent-like protection without the benefit to the public of disclosure and claiming. And in many cases, a new software technique is self-revealing, so that trade secret protection is not available.

Given the huge economic impact of computer-based technology, and the need to protect the investments that drive that innovation, any reduction in the availability of patent protection for computer-implemented techniques would likely result in new distortions to copyright and trade secret law as they are pushed again to fill the gap that would follow from the loss of possible patent protection.

Even if one is concerned about "software patents," trying to address them by drawing a non-inclusive and confusing statutory subject matter line

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[9] 17 U.S.C. § 102(b).

[10] See, for example, *Whelan Associates Inc. v. Jaslow Dental Laboratory, Inc., et al*, 797 F.2d 1222 (3d Cir. 1986).

will only result in patent claims that obscure the invention, and therefore make it harder to examine, enforce, or invalidate. It is far better to have a simple, clear test and then enforce the remaining requirements for getting a patent to weed out potentially-problematic patents.

The computer-based inventions of today clearly possess the "inventive concept" that this Court has noted.

In *Mayo v. Prometheus*,[11] this Court noted that past decisions insisted that "a process that focuses upon the use of a natural law also contain other elements or a combination of elements, sometimes referred to as an 'inventive concept,' sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself." Today's software, and in particular the invention at issue here, easily meet that requirement.

Computer programs are no longer just the evaluation of some well-known formula that expresses a natural law, possibly followed by a little post-solution activity, as was the case thirty-five years ago when this Court decided *Flook* and held that "The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance."[12]

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[11] *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. ___ (2012).

[12] 437 U.S. at 590.

Instead, most computer-based inventions are complex systems, often involving activities distributed across multiple computers communicating over networks, that process data through a series of tests and transformations and not simply solving a known formula. They use specialized input devices, such as the now-common "mouse," touch-screens, or even voice recognition, along with high-quality displays not possible at the time of *Flook*, to permit human-computer interactions that go well beyond mere post-solution activity.

Looking at the method claims in Alice's patents, and comparing them to the claims in *Flook*, it is essentially impossible to see what "formula" Alice's invention is solving or "law of nature" it is using. Instead, the claims require a series of steps that retrieve and manipulate data in what the patent office determined was a novel and nonobvious way, to achieve a clearly useful result.

A computer-implemented invention that simply computes the result of a known formula and uses that result in a conventional matter is not patentable because it is obvious in today's world, not because it is not statutory subject matter.

Patents on computer-implemented inventions are *not* patents on mathematics.

One argument the opponents of patents for computer-implemented inventions make is that

software is mathematics, and mathematics is not patentable.[13]

But in most instances, the correspondence between computer programs and mathematics is merely cosmetic. For example, Einstein's famous equation $E=mc^2$ expresses a relationship between energy and matter, while the computer program statement E=M*C**2 represents the calculation of M times C (M and C designating what is stored in particular memory locations, which may or may not be related to mass and the speed of light) raised to the second power and then assigning the result to a storage location named E. The program statement E=M*C**3 is equally valid in a computer program, but would be simply wrong as a natural law.

Unfortunately for understanding this distinction, early developers of programming languages made their calculation-and-assignment statements look like mathematical equations to seem familiar to scientists and engineers. However, a computer program is a series of statements that perform the specified operations and assign the result to a designated memory location, not a set of mathematical equations that are solved for their results.

Even if we assume that a computer program includes a series of mathematical equations, that assumption ignores how computer-implemented inventions are usually claimed. Claims that include data structures in random-access memories, input

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[13] *Benson*, 409 U.S. 63 (1972), is generally cited for that proposition.

devices such as keyboards or mice, screen display devices, clocks and time-outs, and computer networks (common in computer-implemented patents) are no longer equivalent to pure mathematics.

Again, it is difficult to see "mathematics" in the series of tests and data manipulations that Alice has recited in its method claims.

Section 101 plays an important, but limited, role in determining patentability.

The question before this Court is whether CLS has established that the claims in the Alice patents fail to recite statutory subject matter,[14] not whether they are valid patents over prior technology. As this Court noted in *Diehr*:

> The "novelty" of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.[15]
>
> * * *
>
> The question, therefore, of whether a particular invention is novel is "wholly apart from whether the invention falls

[14] Unlike *Flook*, *Bilski*, and other decisions, Alice holds patents that are presumed to be valid, and the burden should be on the challenger to establish that they are not statutory subject matter.

[15] *Diamond v. Diehr*, 450 U.S. at 188-189.

> into a category of statutory subject matter."[16]

Trying to use a broad statutory subject matter test for more than its narrow intended purpose can result in inordinate time being spent during the examination of a patent application on statutory subject matter considerations, to the detriment of the time available for the more important considerations of novelty, non-obviousness, and whether the patent application disclosure fully supports the claim.

This Court has made it clear that

> In cases of statutory construction, we begin with the language of the statute. Unless otherwise defined, "words will be interpreted as taking their ordinary, contemporary common meaning," and, in dealing with the patent laws, we have more than once cautioned that 'courts should not read into the patent laws limitations and conditions which the legislature has not expressed.'"[17]

Congress used broad language to indicate what should be patentable. Three of the categories – machine, manufacture, or composition of matter[18] –

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[16] *Id.*, at 190, citing *In re Bergy*, 596 F.2d 952, 961 (CCPA 1979).

[17] *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980), quoting *Perrin v. United States*, 444 U.S. 37, 42 (1979), and *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933).

[18] 17 U.S.C. § 101.

"include anything under the sun that is made by man."[19] Being cautious in limiting Congress' intent, this Court has excluded from the sweep of Section 101's broad language only "laws of nature, physical phenomena, and abstract ideas."[20]

As illustrated by examination of the patent resulting from this Court's *Diehr* decision, over-reliance on statutory subject matter as a filter can result in questionable patents.

The prosecution history of United States Patent 4,344,142,[21] the patent that issued as a result of the Supreme Court's decision in *Diehr*, is instructive. Following this Court's decision on March 3, 1981, the patent application was returned to the examiner. On September 28, 1981, Diehr slightly amended the claims so that they better matched the way that the courts had interpreted them, and on March 23, 1982, the examiner allowed the amended application.

Rather than a typical office action, in which the examiner cites prior art and indicates that the claimed invention would be obvious in light of that prior art, Diehr's office action after this Court's decision reads more like a response from an applicant. Two patents are cited as prior art, and the examiner then points out how each patent differs

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[19] S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952), cited by this Court in *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980).

[20] *Chakrabarty*, *supra*, at 308

[21] Available at http://www.digital-law-online.info/papers/lah/diehr/.

from the claimed invention. The examiner does not discuss why those differences would not be obvious, particularly in light of other prior art that may teach those differences.[22]

The prosecution histories of many early computer-implemented patents[23] show that when the examiner initially rejected the claims based on statutory subject matter grounds, much of the subsequent prosecution of the application was spent finding claim language that would overcome the statutory subject matter rejection. When such language was found (usually not substantially different in scope from the original claim language), the application generally was allowed with only the slightest consideration of prior art.[24]

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[22] One difference was that Diehr explicitly claimed determining the temperature "at a location closely adjacent to the mold cavity" and the other difference was that Diehr performed a continuous comparison, neither of which seems enough to render the claims unobvious over the prior art.

[23] On June 2, 1995, the United States Patent and Trademark Office proposed examination guidelines for determining when a computer-implemented invention is statutory subject matter, with final guidelines effective on February 28, 1996. In light of the guidelines, rejections based on lack of statutory subject matter substantially declined, both because applicants had a clear idea of how to claim their computer-implemented inventions to meet the statutory subject requirement and because examiners had a clearly-stated test for determining statutory subject matter.

However, because of the confusion caused by the Federal Circuit's split decision in this case, we are seeing a resurgence of statutory subject matter rejections, sometimes to the exclusion of more meaningful examination.

[24] History is now repeating itself. Since the Federal Circuit held that "signals" were not "articles of manufacture" in *In re Nuitjen*, 515 F.3d 1361 (Fed. Cir. 2008), there have been many

Rigorous application of the other conditions for patentability addresses this Court's past concerns regarding computer-based inventions.

As was shown with the examination of the Diehr patent, reliance on an unclear test for statutory subject matter substantially detracts from performing the other critically-important patent examination tasks. The way to address the concerns about patents on computer-based inventions is to rigorously apply all patent requirements, including novelty, non-obviousness, clear claiming, and sufficient disclosure.

For example, the Federal Circuit's developing law on full-scope enablement,[25] discourages the use of overly-broad claim language, lest their patent claims be found invalid for lack of enablement. This goes to the heart of the "patent bargain" – an inventor getting a patent in trade for disclosing how to make and use the claimed invention. In *O'Reilly v.*

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rejections and appeals as suitable language is found. Currently, the USPTO accepts claims to "non-transitory tangible media," even if there is no discussion of that term in the specification.

[25] See, for example, *Sitrick v. Dreamworks*, 85 U.S.P.Q.2d 1826 (Fed. Cir. 2008).

Morse,[26] claim 8, the use of "electro-magnetism, however developed for marking or printing intelligible characters, signs, or letters, at any distance" went well beyond what was disclosed in the application, and was properly rejected for that reason.

Claiming a computer-based invention as a method makes it easier to determine whether the claim is commensurate with the disclosure. And unlike claiming the invention using functional elements, claiming as method steps should help avoiding having to guess at what structure in the specification defines each claim element, how broadly that structure should be read, and what are its equivalents.

Similarly, simply drafting the claim as an apparatus or machine or system performing a well-known function does not make it patentable. Today, it is well-known how to program a computer to implement a specified method. Even if computer programming was somewhat of a mystery at the time of *Benson*, today junior high school students (or even younger) are writing computer programs. Giving the examiner a simple test for the initial determination of statutory subject matter will give more time for the important determination of whether an invention is obvious or not, particularly in light of well-known methods.

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[26] 56 U.S. (15 How.) 62 (1853).

When is a process an unpatentable "abstract" idea?

This Court has repeatedly held that laws of nature, physical phenomena, and abstract idea are judicially-made exceptions[27] to the broad statutory subject matter categories. While the first two categories are generally understood, there is much confusion about when an idea is "abstract," especially regarding computer-implemented inventions.

The dictionary definition of "abstract," an unembodied method, is consistent with all of this Court's statutory subject matter decisions for computer-based inventions.

From looking at many writings on the subject of statutory subject matter, one would think that when this Court in *Benson* said that abstract ideas were not patentable, it was coining a wholly-new term and then neglecting to define it. Nothing could be further from the facts. As demonstrated by the leading dictionaries at the time, "abstract" in the context used by this Court had a clear and simple definition.

The first non-archaic definition for "abstract" in *Webster's Third* is:

> 2a.: considered apart from any application to a particular object or

[27] Laws of nature and physical phenomena may not be true exceptions because Section 101 requires "new," and laws of nature and physical phenomena are not new.

> specific instance; separated from embodiment.[28]

The definition in the *American Heritage Dictionary* is similar:

> 1. Considered apart from concrete existence or a specification thereof.
>
> 2. Theoretical; not applied or practical.[29]

The *Random House Dictionary* is also in accord, even using the term "abstract idea" as an example:

> 1. conceived apart from concrete realities, specific objects, or actual instances: *an abstract idea.*
>
> 2. expressing a quality or characteristic apart from any specific object or instance, as *justice*, *poverty*, and *speed*.
>
> 3. theoretical; not applied or practical: *abstract science*.[30]

There is no reason to believe the Court in *Benson* intended a different meaning, and these definitions are in complete accord with all this Court's cases. In

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[28] *Webster's Third New International Dictionary of the English Language, Unabridged*, G.&C. Merriam Company, 1965.

[29] *The American Heritage Dictionary of the English Language*, American Heritage Publishing, 1969.

[30] *The Random House Dictionary of the English Language*, Random House, 1969. (Italics in the original.)

Flook, the claimed method held to be unpatentable is not tied to any particular embodiment, and particularly is not limited to performing the method using a computer at all. The claimed computation of the alarm limit could be done, albeit inconveniently, by hand. In contrast, the patentable method claimed in *Diehr* is explicitly tied to a digital computer, both in the preamble and in the claim element that requires "providing said computer with a data base for said press." Similarly, the claims found unpatentable in *Bilski* do not require that they be embodied on a computer.[31]

The prosecution history of the Benson patent application shows that this Court's *Benson* decision correctly found that the claims were to an abstract, or unembodied, idea, placing it in line with later Supreme Court decisions on the patentability of computer-based inventions.

Just as many commentators have criticized this Court for using the well-understood term "abstract idea" as a limitation on statutory subject matter, along with laws of nature or natural phenomena, they ignore the possibility that this Court intended such an "embodiment" test. They assume that the invention in *Benson* appears to contradict this test, because claim 8 requires a "reentrant shift register" and yet was also found unpatentable by this Court.

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[31] Although the invention in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. ___ (2012), was not computer-based, the claimed invention there is also "abstract" because it is not limited to any particular embodiment.

It is doubtful that any of the critics of *Benson* have considered the prosecution history when looking at the claims to see them in the context that was before this Court. The critics simply look at the claims that were included in this Court's opinion and assume that a "reentrant shift register" is a particular hardware device, and not simply a way of indicating a particular operation to be performed regardless of any embodiment.

Because a patent did not issue from Benson's application, the prosecution history is not publicly available at the Patent Office. However, the complete prosecution history was filed with the CCPA as a "Transcript of Record" in the case and forwarded by the CCPA to this Court when certiorari was granted. The prosecution history is now stored in the National Archives, where Professor Hollaar was able to review it and make a copy that he has placed online.[32]

In the prosecution history of Benson, the applicant specifically disclaimed any embodiment limitation. On page 7 of Benson's response to the first office action (page 23 of the prosecution history), Benson's attorney states "Finally, the method represented by these claims *can also be carried out by hand*, the shifting and adding being manual." (Emphasis added.) The claims referred to include both 8 and 13 in essentially the same form as considered by this Court. Further, on page 24 of the prosecution history, Benson's attorney reiterates

[32] http://digital-law-online.info/papers/lah/benson/.

> Concededly, applicants' methods can be implemented by a set of instructions which are used to control the operation of a computer. As noted above, they can also be implemented by circuitry which is wired to perform the function. *They can even be practiced by hand*. (Emphasis added.)

Benson's attorney made those critical admissions because he felt that the law at the time was that if a method could be carried out by hand, the invention was no longer "mental steps" and was therefore statutory subject matter. The CCPA ignored the applicant's admission that the "reentrant shift register" refers to a particular operation that can be "practiced by hand," instead substituting a definition it took from an encyclopedia,[33] thus confusing anybody trying to understand the claimed invention in *Benson* from just the opinions of the CCPA and this Court.

But although this Court discusses the Benson invention as being implemented on a digital computer, it appears that this Court was also considering the admissions made during the prosecution of the application, and not the new definition of a "reentrant shift register," when it stated

> Here the "process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may … be

[33] *In re Benson and Talbot*, 441 F.2d 682, 687 (CCPA 1971).

> performed through any existing machinery or future-devised machinery or *without any apparatus*.[34] (Emphasis added.)

In light of the prosecution history, what was claimed in *Benson* is an abstract method like the one in *Flook*, not tied to any embodiment and certainly not to a digital computer. The simple test reconciling all this Court's decisions is that a method claim is abstract, and therefore not patentable, when the claim is "separated from embodiment" or "apart from" a particular implementation such as on a digital computer.

That Benson's claims *could* be performed by a digital computer does not make them statutory subject matter. When a claim encompasses both statutory and non-statutory subject matter, the claim is non-statutory, lest a person be able to get a patent that covers impermissible things, such as abstract or unembodied methods, by simply writing a claim that also encompasses a tangible embodiment.

This Court's rule that abstract ideas are not patentable serves an important function.

Some may feel that because "process" can be broadly read as anything that can be expressed in a series of steps,[35] there is essentially no limit on what

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[34] *Gottschalk v. Benson*, 409 U.S. at 68 (emphasis added)

[35] The first relevant definition in *Merriam-Webster's Collegiate Dictionary, Eleventh Edition* (2012) for "process" is "a series of actions or operations conducted to an end."

a statutory process is. But patents have always been limited to the "useful arts,"[36] which in today's language is synonymous with "technology."

In *Benson*, this Court wisely decided not to say that a process must somehow involve "technology" to be patentable, and thereby creating unending litigation over what technology means and when a process embraces it. Instead, it continued the practice of treating statutory subject matter broadly, but saying that abstract ideas (as discussed above, those that do not claim any embodiment) are not patentable. This results in a far simpler test for determining statutory subject matter that is true to the "useful arts" requirement.

Claiming computer-implemented inventions as methods helps produce good patents.

There is a strong appeal for claiming a computer-implemented invention as a process or method.[37] Method steps are often the clearest way to describe the scope of the invention, making the claim easier for the examiner or a court to determine the applicable prior art and for someone to determine infringement. Claimed method steps also make it easier to try to advance technology by developing an alternative method for accomplishing the results of claims that follow different steps.

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[36] U.S. Constitution, Article I, Section 8, Clause 8.

[37] The terms "process" and "method" are interchangeable. See 35 U.S.C. § 100(b).

A recent book[38] posits that a major problem with patents is that it is difficult to determine what is covered by a patent, and this lack of a predictable property right produces uncertainty for developers and costly disputes that detract from the positive incentives of the patent system. The authors' research found that only in some sectors of technology, such as the pharmaceutical industry, do patents act as advertised, with their benefits outweighing their costs, while for software, the lack of clear claiming has had a definite negative effect.

Computer technology has matured considerably in the four decades since this Court decided *Benson*, with that opinion's concern about preempting all ways of doing something now highly unlikely, unless what is being claimed is such an advance over the prior art that is deserves patent protection. More likely, broad claims will be obvious in light of prior art and be unpatentable for that reason, and it is not necessary (or desirable) to use a statutory subject matter as the reason for the rejection.[39]

When tied to a computer, a method claim is definitely *not* the transformation of an abstract idea,

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[38] James Bessen and Michael J. Meurer, *Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovation at Risk*, Princeton University Press, 2008.

[39] For example, even around the time of *Benson* this Court unanimously held a claimed computer-based invention unpatentable not because it was not statutory subject matter, but because it was obvious in light of the prior art. *Dann v. Johnson*, 425 U.S. 219 (1976). With hundreds of thousands of patents and publications in the computer art, such rejections of overly-broad patents are even easier.

law of nature, or physical phenomena into a patented process by merely having a draftsman attach some form of post-solution activity to a mathematical formula, as this Court warned about in *Flook*.[40] Instead, claiming a process may be the best way to meet the statutory requirement of a claim "particularly pointing out and distinctly claiming" the computer-implemented invention.

Two important caveats regarding the simple definition of an "abstract idea."

It is important to keep two things in mind regarding this definition of an abstract, and therefore nonstatutory, idea.

First, it should not be seen as imposing any new requirement for embodiment in a machine for any process or method claim that is otherwise statutory under existing law. Process claims limited to transforming or reducing an article to a different state or thing, recognized since *Cochran v. Deener*,[41] remain statutory subject matter because they are clearly not "abstract ideas."

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[40] For example, consider United States Patent 3,568,156, "Text Matching Algorithm," granted March 2, 1971, and assigned to Bell Telephone Laboratories. It discloses both an implementation as a computer program and an unlikely, but clearly statutory, implementation as circuitry, and then writes the claim in "means for" language which covers whatever is described in the specification.

[41] 94 U.S. 780 (1877).

Second, as discussed above, just because a method is explicitly limited to a computer embodiment, and is not an "abstract idea" but is statutory subject matter, does not mean that the claim is patentable. The claim must also be novel, non-obvious, and commensurate with what is disclosed in the specification. A problem with patents on computer-implemented invention is *not* that they are claimed as a method, but that they may claim more than what was disclosed in their patent application or what they claim is obvious in light of the prior art.

Restating this test for when a method claim is abstract will give a second chance for patents that meet the requirements of disclosure and non-obviousness.

If this Court clarifies that a claimed method limited to one or more tangible embodiments means that it is not an unpatentable "abstract idea," then there should be little difficulty for a patent owner to limit non-statutory method claims to computerized embodiments to make the claims statutory by requesting reissue of the patent with new, statutory claims.

The patent statutes provide for the reissue of defective patents.

> Whenever any patent is, through error, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than

> he had a right to claim in the patent, the Director shall, on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent. No new matter shall be introduced into the application for reissue.[42]

There is a limitation on this, however.

> No reissued patent shall be granted enlarging the scope of the claims of the original patent unless applied for within two years from the grant of the original patent.[43]

Clearly, a claim that is limited to an embodiment is narrower than a claim not so limited. But if the Court were to require a different test, it might not be possible to rewrite the claims so that the new claims are strictly narrower than the original claims.

Reissue is not automatic. Instead, USPTO regulations prescribe that the reissue application "will be examined in the same manner as a non-reissue, non-provisional application, and will be subject to all the requirements of the rules related to

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[42] 35 U.S.C. § 251(a).

[43] 35 U.S.C. § 251(d).

non-reissue applications."[44] That means that the application will be examined to determine that the specification enables the claimed implementation, and that it is novel and non-obvious in light of the prior art.

Because there is normally a two-month delay period after the reissue request is announced in the USPTO's *Official Gazette*, "members of the public may have time to review the reissue application and submit pertinent information to the Office before the examiner's action."[45] This submission of prior art by parties affected by the reissued patent means that the examiner can have a better view of the prior art than during the initial examination of the patent.

Computer-implemented systems are clearly patentable "machines."

The answer to whether a computer-implemented invention is statutory subject matter when claimed as a computer[46] or data processing system should be clear. Of course, it is a machine. Babbage's analytical engine, perhaps the first programmable computer, used gears and similar mechanisms, reading its instructions off a set of cards particular to a given problem. Nobody would question whether it was a

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[44] 37 C.F.R. § 1.176(a).

[45] *Manual of Patent Examining Procedure (MPEP)*, section 1441.

[46] While the term "computer" once meant a person who carried out calculation by hand, few today know that old meaning and instead think of it as short for an electronic digital computer.

"machine," even though what it did could be changed by supplying a new program.

Certainly a computer system is no more a "law of nature" or a "physical phenomena" than any other electronic device. And it is hard to think of any credible definition for an "abstract idea" that includes a tangible computer system.

A computer program running on the embedded processor on an appliance such as a washing machine turns that embedded processor into a special-purpose washing machine controller,[47] replacing the mechanical controller of past washing machines. Because the power and flexibility of the embedded controller allows the washing machine to perform functions that would be impractical using a conventional controller with motors and gears, the embedded controller would be patentable if novel and non-obvious. Babbage's analytical engine, impractical to implement given the mechanical technology of his day, has become today's computer, practical because the gears have been replaced by electronic circuits.

While it is always possible to implement any technique that runs on a general-purpose computer as special-purpose hardware, it is often impractical

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[47] "We have held that such programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994). This holding is in line with well-accepted computer science principles, such the programming of a computer to produce a Java "virtual machine" to run web-based applications.

for any but the simplest techniques. This is why as more functionality is desired, programmed embedded general-purpose processors are replacing specialized electronic circuitry, just as such circuitry replaced mechanical devices.

Again, note that a computer-implemented invention claimed as a machine does *not* mean that the claim is patentable. Rather, it only means that the claim has passed the statutory subject matter hurdle, and the requirements of novelty, non-obviousness, and sufficient disclosure must still be considered. Having a simple test, well-grounded in technology, such as "a computer is a machine and therefore statutory subject matter" will shift the time spent trying to determine whether the claim is statutory to better examining the application to assure that patent claims are not granted on something that is obvious or outside of what is taught in the patent application.

Departing from the actual language of a claim can make the determination of whether an invention is statutory completely arbitrary.

When determining whether something is statutory subject matter, this Court has always looked to what is actually being claimed as the invention, unlike in this case in which the Federal Circuit explicitly treated machine claims as if they were instead for a method, and then held that those hypothetical method claims were not statutory subject matter.

Compounding the problem, the Federal Circuit never gives the language for its hypothetical method claims, and simply states that they "mirror Alice's method claims."[48] But a comparison of the cited system claim[49] to the cited method claim[50] shows that while they both are, unsurprisingly, directed to the same general invention, the system claim is clearly *not* a paraphrase of the method claim. Without knowing what the Federal Circuit considered as the language of the hypothetical method claim the court used to determine whether the subject matter was an abstract idea, it is impossible to say that the hypothetical is a patentable claim as in *Diehr* or an unpatentable claim as in *Flook*, since as discussed below, those claims are very similar.

Under the Federal Circuit's *Alice* holding, whether a system claim is patentable depends on how it is reframed as a method claim, something completely arbitrary especially when the hypothetical method claim isn't even provided.

It is not hard to see how machine claims for many inventions that are not computer-based can be rewritten as method claims, and then depending on whether that rewriting is "abstract" or not, those machines are no longer statutory subject matter. For example, using the Federal Circuit approach, claims to the circuitry for an automobile's warning of a car

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[48] 717 F.3d 1269, 1289.

[49] Claim 1 of the '720 patent, *Id*., at 1289.

[50] Claim 33 of the '479 patent, *Id*. at 1285.

door that is ajar could be considered a "method for warning that a car door is ajar" and perhaps then a nonstatutory "abstract idea." Clearly, the Federal Circuit approach is wrong.

In the *Myriad* decision[51] last term, this Court was able to come to a unanimous opinion by looking at what was actually being claimed and recognizing that some claims were unpatentable because they covered naturally-occurring human DNA but some claims were patentable because they covered man-made cDNA, rather than by simply considering all the claims as to "human DNA." Similarly, in this appeal, this Court can considerably simplify the analysis and yield a clear and technically-sound result by observing that some of the claims in this case are for methods, which may or may not be nonstatutorily "abstract," and some of the claims are "machines" which are clearly statutory.

The effort to find media storing computer programs as statutory articles of manufacture has stifled the development of patent law to address computer-based inventions.

The saga of the patentability of media storing a computer program shows the problems that result when concentrating on whether something is statutory subject matter and neglecting the development of patent law in more directly-applicable areas, such as secondary infringement.

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[51] *Association for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. ___ (2013).

Whether something is an article of manufacture would not be a question with respect to computer-implemented inventions, except for patent owners concerned that those responsible for the infringement of a computer-implemented patent would not be direct infringers if the invention were claimed as either a machine or a method. Only the end users who receive and install the distribution media (originally, floppy disks) would directly infringe when they load the program to create the claimed machine or when they actually run the program to practice the claimed method. While the company supplying the media containing the infringing program should be liable either as a contributory infringer under 35 U.S.C. § 271(c) or for inducing infringement under § 271(b), there were concerns about whether those provisions would be applicable.[52]

Rather than work to clarify the law of what constitutes contributory infringement or inducement of infringement for computer-based inventions (either by bringing cases that raise the point or asking Congress to address it statutorily), applicants began to file article of manufacture claims. These simply claimed a storage medium that contained a computer program that performs a specified method. The Patent Office regularly rejected such claims until there was an appeal to the Federal Circuit,

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[52] As computer program distribution has shifted from tangible floppy or compact disks to downloading from the Internet, this form of claim has become less important. The trick cannot be extended to Internet distribution because of the Federal Circuit's holding in *In re Nuitjen*, 515 F.3d 1361 (Fed. Cir. 2008) that intangible signals are not articles of manufacture.

which was remanded when the Patent Office indicated that it would start allowing such patents.[53]

The problem with this article-of-manufacture trick is that it sweeps more than is wanted into statutory subject matter. Just as a compact disk containing a computer program is a statutory article of manufacture, so would be a compact disk of music. Former Chief Judge Archer warned about this in his dissent in *Alappat*.[54] And because patent law does not contain copyright law's fair use and independent creation defenses, that person would have a lock on the expression stored on the disk for the length of a patent.

Since then, the Patent Office has issued examination guidelines[55] that allow such claims as long as the corresponding method claims are novel and non-obvious and the information stored on the medium was deemed "functional." a distinction believed by the Patent Office to be necessary to prevent allowing patents on media whose only novelty is the expressive content of a book or song that the media holds.[56]

Unfortunately, the guidelines draw a distinction where none exists, both in technology and in patent law. A compact disk is an article of manufacture, no

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[53] *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995).

[54] 33 F.3d 1526, 1554 (Fed. Cir. 1994, Archer, C.J., dissenting).

[55] 61 Fed. Reg. 7478 (1996).

[56] The leading case on the "printed matter doctrine" is *In re Gulack*, 703 F.2d 1381 (Fed. Cir. 1983).

matter what the disk holds and how its contents are eventually used. It is a man-made object, storing data in the same fashion (in a simple view, as "zeros and ones"), regardless of whether the data will eventually be used to program a computer, show a movie, or play a song. The only difference in the data stored on the disk is how it is later used, not anything related to either the data or the medium.

The debate whether a tangible computer-readable medium, such as a floppy disk, is a statutory article of manufacture has short-circuited cases that would have developed the law in important areas, such as:

- Whether a computer program capable of doing things that do not infringe as well as performing the patented method might be considered as having a "suitable non-infringing use" and therefore the sale of the computer program may not be contributory infringement even though the program was "especially made or especially adapted for use in an infringement" as required by § 271(c) for contributory infringement.

- Whether a medium storing a computer program in exactly the same way that it stores any other program be considered non-obvious simply because the computer program will perform a different task after it has been loaded into a computer.

While answering such questions are well beyond the scope of this case, by recognizing that a tangible storage medium is clearly a statutory article of manufacture, just like a machine, even if the medium stores a computer program, this Court can enable the development of the law to address the real questions of when a storage medium containing a program is nonobvious in light of similar program storage on the same media and regarding secondary infringement of a computer-based invention claimed as either a machine or an embodied method.

Storage media are clearly statutory articles of manufacture. They are "made by man"[57] and not a law of nature, physical phenomena, or abstract idea. They do not become non-statutory simply because of what they are storing. Like trying to determine whether machine or method claims are statutory, the effort in determining whether an article of manufacture claim is statutory detracts from the more important effort in determining novelty, non-obviousness, and commensurate disclosure.

By allowing all but abstract, unembodied methods, this Court can be true to its past opinions and not harm those patent owners who depended on them.

In her dissenting-in-part opinion below, Judge Moore expressed concern over how the Federal Circuit was interpreting this Court's "abstract idea exception," noting that

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[57] *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (citing S. Rep. No. 82-1979, at 5 (1952) and H.R. Rep. No. 82-1923, at 6 (1952)).

> Today, several of my colleagues would take that precedent significantly further, lumping together the asserted method, media, and system claims, and holding that they are all patent-ineligible under § 101. Holding that all of these claims are directed to no more than an abstract idea gives staggering breadth to what is meant to be a narrow judicial exception. And let's be clear: if all of these claims, including the system claims, are not patent-eligible, this case is the death of hundreds of thousands of patents, including all business method, financial system, and software patents as well as many computer implemented and telecommunications patents.[58]

Judge Moore goes on to observe that the opinion below would

> render ineligible nearly 20% of all the patents that actually issued in 2011. If the reasoning of Judge Lourie's opinion were adopted, it would decimate the electronics and software industries. There are, of course, software, financial system, business method and telecom patents in other technology classes which would also be at risk. So this is quite frankly a low estimate. There has never

[58] *CLS Bank v. Alice*, 717 F.3d 1269, 1313 (Fed. Cir. 2013).

> been a case which could do more damage to the patent system than this one.[59]

But, as noted above, this damage can be mitigated by this Court.

First, this Court should state that in making statutory subject matter determinations, it is improper to lump all claims into the method category unless that is the specific form of the claim, especially when the lumping involves arbitrarily creating a hypothetical claim not made by the inventor. Patent claims are method claims only when that is the specific statutory class of the claim. Furthermore, computers are clearly man-made objects, and machine claims for them recite statutory subject matter. But that does not mean that a computer-implemented invention is patentable just because it is claimed as a machine. The implementation of an old technique on a computer using standard techniques is clearly obvious, even if the technique has never been computerized before. Other statutory requirements for patentability must be considered.

Second, this Court can clarify that a patent claim not limited to one or more tangible embodiments is an "abstract idea." In accord with the *Benson-Flook-Diehr* trilogy recently confirmed in *Bilski*, as discussed above, a claim with no specified embodiment, perhaps even being done by hand, is not patentable subject matter. But again, simply tying a method claim to a machine does not make it patentable. As with machine claims, method claims

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[59] *Id*. at 1313, fn. 1.

must be limited to that which is new, non-obvious, and adequately disclosed, the other key tests for granting or invalidating a patent.

Conclusion

This Court should use this case to restore proper emphasis on when something should be patentable – when an adequately-disclosed invention is a non-obvious advance over the prior art – by adopting the clear and simple test for when a claim to a computer-implemented invention is statutory subject matter by using distinctions that make sense in the underlying technology.

Peter K. Trzyna
Counsel of Record
ATTORNEY AT LAW
195 North Harbor Drive, #5403
Chicago, Illinois 60601
(312) 240-0824
pkt-law@sbcglobal.net

Amicus Curiae

Lee Hollaar
1367 East 100 South
Salt Lake City, Utah 84102
(801) 363-8086
hollaar@cs.utah.edu

Amicus Curiae